Before the
Federal Communications Commission
Washington, D.C. 20554

APPROPRIATE METHOD FOR	)	
DETERMINING THE PROTECTED	)	
CONTOURS FOR	)	GN Docket No. 12-354
GRANDFATHERED 3650-3700 MHZ	)	
BAND LICENSEES	)	

Comments of LS telcom, Inc. and RadioSoft, Inc.

I. INTRODUCTION

1. LS telcom is a worldwide provider of integrated, scalable, and automated system solutions and strategic consulting service for radio spectrum management and radio spectrum monitoring. The system solutions comply with global ITU standards and integrate regional and national coordination agreements. LS telcom is an ITU member (ITU-R and ITU-D), a White Space Database provider certified by the FCC, and actively participates in radio communications programs with prestigious universities and research institutes around the world. Regulatory authorities/commissions, defense organizations, and network operators in more than 100 countries rely on the commanding capabilities provided by its advanced system solutions and its internationally recognized consulting expertise in all aspects of the radio spectrum management and monitoring discipline. Industry Canada, a FCC peer regulatory authority, is currently implementing LS telcom's flagship product SPECTRA Enterprise replacing their legacy system and modernizing their spectrum management environment to support the spectrum management lifecycle from spectrum planning and allocation, technical frequency and interference analysis, licensing and billing to national and international coordination, including cross-border coordination with the relevant US government organizations.

2. RadioSoft is a developer of software and databases for Frequency Coordination, Service and Interference calculation and TIA/EIA TSB-88 compliance to the Commission, Frequency Advisory Committees ("FACs"), the Federal Government and the general radio user community for both Land Mobile and Broadcast users. It is also, by contract, the retail frequency coordinator for both Public Safety (for AASHTO) and Business-Industrial (for AAA and MRFAC) applicants. It is an active participant in spectrum policy debates, and has commented on the record various Dockets. It is both a White Space Database provider and, under Frequency Finder, Inc., a registrar for the 70-80-90 GHz link service.

II. SUMMARY

1. In GN Docket No. 12-354, the proposed methods for contour calculation provide a general level of accuracy that may impact the spectrum efficiency in the 3650-3700MHz band. Alternate calculation methods are available that deliver a more precise result through optimized calculations and more detailed data input. LS telcom recommends the use of calculations that produce the most efficient use of the spectrum.

2. Collection of the missing key data points as identified in the GN Docket No. 12-354 is paramount for the protected contour calculations. The ability to specifically distinguish between base station and CPE use, identify the center frequency of operation, and association of unregistered CPE with a base station are all key inputs that should be part of the protected contour registration process.

III. DISCUSSION

1. There are two types of contour calculations proposed; point to area and point to point.

2. The first type of calculation is a basic point to area link (i.e. a fixed base station and a (or a set of) mobile(s) within a given area). The fixed station is calculated by predicting the received power, the area, and identification of all points above the minimum receive level of the mobile receive path. The next step is to verify (point by point within that coverage area) whether mobile transmit is able to establish and maintain a connection to fixed receive location. This is identified as the "talk-back-range". This combined result identifies the area where communication is possible. The second part of the calculation related to the identification of interference. The proposed methods achieve their results through combining overlapping coverage results. As a more precise alternative, LS telcom recommends that the interference calculation is based on combining the coverage area with points of a given density (identified points or alternatively random points within the coverage area). This defines a point-to-multipoint system with a fixed Tx/Rx (as before) and a mobile Rx/Tx at these set of points. The interference check between two of these systems is simple: The recommended method, as proven in commercially available mobile interference tools, provides a precise prediction of real C/I or T/I for each combination of points. Additionally, optimized models such as ITU452/530 can produce additional accuracy when compared to Free Space.

3. The second type of calculation is for point to point links. This calculation is based on the received power at each location. The proposed method completes the calculation using combined coverage areas by their position. LS telcom proposes that more precise calculations can be achieved by using the specific data of the well-known registered stations (end points of the point to point link) as an alternative to the use of combined coverage areas.

4. Determination of the appropriate protected contours will rely heavily on the accuracy of the information collected as input to the calculations. As identified in GN Docket No. 12-354, distinguishing between base station and CPE use, identify the center frequency of operation, and association of unregistered CPE with a base station are necessary elements to produce the most precise footprint of the contour. LS telcom agrees that the registered users of the protected contours should be required to provide the identified information through a defined process. An online registration portal can be used to collect this information. Once collected the data will augment the existing ULS information to determine the protected contour.

IV. CONCLUSION

1. There are a number of methods that can be used for calculating the contours identified in GN Docket No. 12-354. These proposed methods deliver a level of prediction accuracy based on the general data inputs and methods recommended. As the wireless industry as a whole looks to leverage the most efficient use of spectrum, LS telcom proposes that additional precision for the contour calculations can be achieved by leveraging more precise input data that will result in more efficient use of spectrum.

2. LS telcom agrees with the commission that the collection of missing key data points identified should be required as a step in the defined registration process and that this data should be used as part of the process to determine the protected contour.

Respectfully submitted this 12th of January, 2016 by

\ss

Casey Joseph, Vice President Sales and Business Development
LS telcom Inc.
5021 Howerton Way, Suite E
Bowie, MD 20715
301.266.1195 V / 301.352.4075 F
CJoseph@lstelcom.com

Peter Moncure, CEO
RadioSoft, Inc.
194 Professional Park Drive
Clarkesville, GA 30523
888.732.4695 V / 706.754.2745 F
PMoncure@RadioSoft.com

Ing. Peter Riemann
Presidente/President
LS telcom Limited
1145 Hunt Club, Suite 100
Ottawa, Ontario, Canada, K1V 0Y3
Tel: +1.613.248.8686 x1007
Fax: +1.613.248.8965
PRiemann@LStelcom.com

Dr. Uli Behr
Department Head, Physical Modeling
LS telcom AG
Im Gewerbegebiet 31-33
D-77839 Lichtenau, Germany
UBehr@lstelcom.com